

CLIMATOLOGICAL DATA FOR JUNE, 1911.

DISTRICT NO. 1, NORTH ATLANTIC STATES.

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GENERAL SUMMARY.

The general weather conditions during the month were, for the most part, decidedly pleasant, and, except for the damage occasioned in restricted localities by severe local storms during the early part of the second decade, may be regarded as having been favorable to the needs of vegetation. The extremes of temperature were not unusual for the season, and the changes gradual in every instance. Over the greater part of the district the rainfall was abundant and fairly well distributed, and, although in parts of New England and New York there was a marked deficiency in rainfall during the latter half of the month, the effect was not pronounced. The fact that vegetation did not suffer greatly during this period was probably due to the moderate temperatures that prevailed, the presence of some degree of cloudiness, and the occurrence of a few light showers, all of which tended to prevent a rapid escape of moisture from the soil and to ward off conditions that otherwise might have developed into a severe drought.

A remarkable feature of the weather of June, 1911, was the unusual number of destructive thunderstorms in all parts of the district. Such reports as are available lead to the belief that the damage wrought during the month by lightning, winds, hail, and washouts has seldom, if ever, been equaled, certainly not for many years. The following table summarizes the leading features of meteorological interest for the States and parts of States included in the district:

States or parts of States within District No. 1.	Temperature.			Precipitation.				Average number of—		
	Average.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	Rainy days.	Clear days.
New England States.....	63.1	-1.3	92	32	2.94	-0.21	6.70	1.20	10	12
New York.....	64.4	+0.7	99	32	4.60	+0.76	8.59	1.84	12	12
Pennsylvania.....	68.0	+0.2	99	38	4.71	+0.86	10.11	2.13	13	12
New Jersey.....	68.9	-0.2	97	40	5.36	+1.37	10.11	2.84	14	12
Maryland, Delaware, and District of Columbia.....	72.0	+0.7	102	41	3.91	-0.14	7.22	1.67	11	13
West Virginia.....	69.4	+1.9	101	40	4.63	+0.25	6.55	3.16	10	14
Virginia.....	72.6	+1.3	101	38	4.15	-0.63	5.58	2.78	12	12

TEMPERATURE.

The average temperature for the district was about 68.3°, which is nearly equal to the normal, slightly lower than the average for June, 1910, and only about 3° higher than the average for May of this year. The wide variance in the climate in different parts of the district appears in the fact that the mean temperature for the month at Porto Bello, Md., was 75.7°, while at Bloom-

field, Vt., it was only 55.2°, these being respectively the highest and lowest mean temperatures reported for the month. However, the month was somewhat warmer than usual in the southern part of the district and cooler than usual in the northern part. At Patten, Me., and Bloomfield, Vt., on the 3d, and at Indian Lake, N. Y., on the 24th, the temperature fell to 32°; this was the lowest temperature recorded during the month in any part of the district; but temperatures several degrees lower usually occur in June at the places named. As a rule, on the warmest days of the month, the temperatures were not higher than on the warmest days of May this year. In New England there is record of a temperature of 101° in May this year, while the highest in June was only 92°.

Slight and gradual temperature changes were characteristic of the month's weather and the designation of warm and cool periods in this month bears much less than the usual significance, for the daily mean temperatures did not at any time differ greatly from the normal. However, two warm and two cool periods may be mentioned. The first warm period lasted from about the 9th to the 11th, and the second from the 26th to the 29th, the warmest days of the month being the 11th and 27th. The first cool period covered the first five days and was marked by comparatively low temperatures in the daytime as well as at night, while the second brought cool nights only and lasted from 16th to the 20th. The latter was scarcely noticeable in some parts of the district, but in many localities the lowest temperatures of the month occurred on the morning of the 17th, or on other dates of this period.

PRECIPITATION.

The average rainfall for the district was about 4½ inches, and at most stations the amounts were above the normal. There was an average departure for the district of +0.29 inch. Over the southern sections, except near the coast, the rainfall was abundant, even excessive in some localities, and well distributed throughout the month. Elsewhere the rainfall was generally below the normal with a marked deficiency for the last 10 to 15 days. This condition was most marked in the middle and upper Hudson Valley regions and in the New England States, where probably three-fourths of the monthly precipitation occurred before the 15th, but it produced less serious drought than might ordinarily be expected, for, in the absence of a normal rainfall, there was no long period of abnormal heat, but a considerable degree of cloudiness prevailed and slight amounts of rain fell frequently, holding in check to some extent the processes of evaporation.

The number of rainy days was greater than usual even in the regions where the precipitation was below normal. The heaviest precipitation occurred on the 1st, 5-7th, and

11-14th. The rainfall of these dates occurred chiefly in the form of local thunderstorms many of which caused excessive rates of rainfall and were attended by damaging winds, lightning, and hail. The most destructive storms occurred on the 11th, 12th, and 13th, and caused the loss of many lives, and immense damage to property in nearly all parts of the district. According to the press reports the damage from the storm of the 12th at Allentown, Pa., amounted to not less than \$250,000, while town and country throughout the Middle Atlantic States suffered proportionate losses. At Earlville, Madison County, N. Y., there was a well-developed tornado about 5 p. m. on the 12th which wrecked a number of buildings and unroofed many others. Fortunately the course of this violent storm was short, covering only about 4 miles.

The following, taken from the report of Mr. L. A. Judkins, section director for New Jersey, serves well to illustrate the conditions that attended the principal storms of the month in most parts of the district:

A series of intense local storms occurred in the northern and western parts of the State during the first few days of the second decade, lightning and wind causing much damage to property. In northern New Jersey the storms began on Saturday evening, June 10, and were repeated on the 11th and 12th. In the central and western counties the storms of the 12th were the most severe and damaging. It is reliably reported that the number of buildings struck by lightning and either burned or badly damaged, together with the destruction wrought by high winds, has rarely been equaled. The loss on buildings totals an enormous sum, the amount in Paterson, N. J., alone being estimated at \$100,000. In Jersey City the streets were littered with uprooted trees and fallen wires, buildings were unroofed, and fires started by lightning and electric-light wires. One man was killed as a result of stepping on a "live" wire. Bayonne, N. J., was almost denuded of its shade trees, some of those that were uprooted being 10 feet in girth at the thickest part. Many small boats and launches on Newark Bay were blown ashore or sunk. Hackensack, N. J., and vicinity suffered greatly from the effects of the storm of June 10, which is said to have been the most severe in that section since the Cherry

Hill tornado of July, 1905. Electric-car, electric-light, telephone, and steam-train services were interrupted and several buildings were struck by lightning in and around Hackensack. Live stock was killed in the fields by lightning in the farming sections of the northern counties, numerous farm buildings were burned or damaged by the lightning, highways were washed by the torrents of rain, and crops in restricted localities were prostrated by hail. Hailstones measuring 4½ inches in circumference are said to have fallen in parts of Sussex County.

RIVER CONDITIONS.

Nearly all the principal streams were lowest at the beginning and at the end of the month, but rose to high stages for June about the 15th, when there was a marked rise due to the abnormally heavy rainfall that was general over the district on the 11th, 12th, and 13th. The rains of this period were heaviest in the Delaware basin and caused higher stages in that river than have occurred at any time since last December and higher than have been recorded in June for many years. At most stations above Trenton, N. J., the average stages for the month also were the highest for June since the beginning of the river observations about 8 years ago. On most other river systems the average stages for the month were somewhat lower than usual for June, the swell at the middle of the month being of short duration.

SUNSHINE.

The average amount of sunshine for the district was about 264 hours, which is not far from the normal for June, but considerably less than was recorded in the preceding month. It appears that the average for each State was nearly equal to that for the entire district. At Eastport, Me., only 207 hours of sunshine were recorded while at Baltimore, Md., there were 307. The average number of days with 80 per cent or more of the possible sunshine was 10, and with 20 per cent or less was 6.

TABLE 1.—Climatological data for June, 1911. District No. 1—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>Maryland—Contd.</i>																				
Keedysville.....	Washington.....	400	7	72.1	.....	99	11	50	9	43	2.97	.....	0.86	0	12	14	12	4	n.	J. A. Miller.
Lake Montebello.....	Baltimore.....	2	72.2	.....	99	11	52	17	33	4.36	.....	1.71	0	14	14	5	11	nw.	Martin L. Dobler.	
Laurel.....	Prince George.....	150	17	71.6	+ 0.6	99	11	50	17	39	2.22	— 2.09	0.60	0	11	9	17	4	.....	Dr. T. M. Baldwin.
Leonardtown.....	St. Mary.....	1	73.5	.....	95	23	54	17	34	3.51	.....	1.20	0	13	15	12	3	s.	Brother Fidelis.	
Monrovia.....	Frederick.....	630	24	70.9	— 0.8	99	11	50	17	37	4.14	— 0.22	0.77	0	14	11	11	8	nw.	J. H. Lawson.
Pocomoke City.....	Worcester.....	37	18	73.8	+ 1.1	93	23 ^t	56	97	29	2.51	— 0.92	0.61	0	12	18	9	3	s.	Hon. R. M. Stevenson.
Porto Bello.....	St. Mary.....	38	6	75.7 ^o	.....	97	23	58	97	31 ^o	4.58	.....	1.50	0	8	5	18	7	.....	R. M. Coad.
Princess Anne.....	Somerset.....	17	18	70.8	+ 0.5	92	23	50	16	33	2.35	— 1.04	0.70	0	10	15	15	2	sw.	Jas. R. Stewart.
Salisbury.....	Wicomico.....	23	6	73.6	.....	96	23 ^t	52	97	37	1.79	.....	0.48	0	9	13	5	3	sw.	W. E. Dowling.
Solomons.....	Calvert.....	20	20	75.4	+ 2.2	98	23	60	15	26	1.67	— 1.82	0.55	0	10	4	9	17	nw.	Dr. W. H. Marsh.
State Sanatorium.....	Frederick.....	1,200	3	70.3 ^b	.....	93 ^b	11	46	14	25 ^b	4.09	.....	1.42	0	13	16	9	5	w.	Joseph V. Shimek.
Sudlersville.....	Queen Anne.....	65	12	72.2	+ 1.3	97	11	50	17	34	4.46	+ 0.46	1.51	0	12	16	8	6	w.	Jas. E. Higman.
Takoma Park.....	Montgomery.....	320	13	70.3 ^a	+ 0.2	97	11	52	17	33	3.32	— 1.73	0.46	0	13	0	22	8	.....	L. M. Moers.
Taneytown.....	Carroll.....	450	12	71.0	+ 0.6	99	11	46	18	37	3.98	+ 0.49	1.48	0	11	13	10	7	w.	Jas. B. Galt.
Towson.....	Baltimore.....	465	3	71.8	.....	97	11	51	17	33	3.94	.....	1.54	0	15	14	6	10	se.	C. W. E. Treadwell.
Van Bibber.....	Harford.....	100	14	70.9	+ 0.9	92	27	49	19	35	6.10	+ 2.16	1.15	0	11	18	8	4	.....	W. Ben. Ford.
Westernport.....	Allegany.....	1,000	17	70.6	+ 1.5	99	11	48	15	43	5.90	+ 1.98	1.20	0	11	16	9	3	.....	Prof. O. H. Bruce.
Westminster.....	Carroll.....	800	18	70.6	.....	97 ^c	11	.....	.....	3.14	— 2.02	1.26	0	16	20 ^b	5 ^b	3 ^b	w.	Geo. F. Morelock.	
Woodstock.....	Baltimore.....	392	37	72.6 ^c	+ 1.7	97	11 ^t	53	17	35 ^c	5.17	+ 1.52	1.35	0	13	18 ^e	5 ^c	7 ^c	.....	Rev. A. J. Donlon, S. J.
<i>Delaware.</i>																				
Delaware City.....	Newcastle.....	20	9	71.4	.....	93	11	54	8	26	3.81	.....	1.01	0	8	22	1	7	nw.	H. Morton Price.
Dover.....	Kent.....	40	23	71.9	— 0.7	97	11	50	17	34	3.79	+ 0.43	1.57	0	8	10	14	6	w.	Thos. F. Dunn.
Milford.....	do.....	20	27	73.1	+ 0.9	98	11	54	16 ^t	32	6.32	+ 2.66	3.09	0	11	18	5	7	ne.	C. J. Holzmüller.
Millsboro.....	Sussex.....	29	19	71.8	+ 0.8	101	11	51	17	41	2.25	— 1.39	0.91	0	8	17	5	8	ne.	Rev. L. W. Wells.
Seaford.....	do.....	40	18	71.9	+ 0.9	94	11	51	17	36	1.92	— 2.00	0.50	0	9	21	7	2	w.	E. B. Brown.
<i>District of Columbia.</i>																				
Washington.....	.....	112	41	73.0	+ 0.3	101	11	56	17	33	4.55	+ 0.37	2.11	0	14	10	10	10	nw.	U. S. Weather Bureau.
<i>Virginia.</i>																				
Culpeper.....	Culpeper.....	450	3	72.4	.....	94	22	52	9	39	5.31	.....	1.18	0	13	9	20	1	nw.	Col. H. C. Burrows.
Dale Enterprise.....	Rockingham.....	1,350	32	70.2	— 0.3	100	23	44	27	49	3.28	— 2.43	.77	0	13	12	12	6	s.	Rev. L. J. Heatwole.
Doswell.....	Hanover.....	134	10	75.0	.....	100	23	53	97	43	4.37	.....	1.37	0	7	18	9	3	s.	Rich., Fid. & Pot. R. R.
Eastville.....	Northampton.....	15	1	74.4	— 0.1	97	23	50	9	33	2.78	— 0.24	.71	0	11	10	13	7	sw.	Thos. B. Robertson.
Fredericksburg.....	Spotsylvania.....	100	22	72.8	+ 0.3	97	11	55	97	35	3.94	— 1.03	1.25	0	15	14	14	2	nw.	S. G. Howison.
Lincoln.....	Loudoun.....	500	10	72.8	+ 2.5	100	11	50	97	39	4.18	— 2.37	.72	0	13	9	16	5	nw.	Dr. Geo. Roberts.
Mount Weather.....	do.....	1,726	7	67.6	0	91	11	52	6	24	4.68	— .14	1.03	0	15	9	13	8	w.	U. S. Weather Bureau.
Quantico.....	Prince William.....	16	14	73.8	+ 2.2	98	10	53	18	42	3.01	.....	1.01	0	10	17	10	3	ne.	Rich., Fid. & Pot. R. R.
Staunton.....	Augusta.....	1,380	19	72.1	+ 1.7	98	23	38	5	44	4.29	— 0.53	1.30	0	12	12	9	9	nw.	Ernest Notthagle.
Warsaw.....	Richmond.....	160	19	75.6	+ 2.6	96	24	56	27	36	5.58	+ 1.41	1.75	0	10	7	22	1	s.	C. H. Constable.
Woodstock.....	Shenandoah.....	927	15	71.6	+ 1.3	101	11	51	27	40	4.21	— 0.65	1.46	0	12	12	14	4	w.	Mrs. A. G. Miley.

^a, ^b, ^c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

‡ Estimated by observer.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—*Maximum and minimum temperatures at selected stations for June, 1911. District No. 1—Continued.*

Date.	New Jersey.								Martinsburg, W. Va. ^{§§}	Maryland.								Millisboro, Del.	Washington, D. C.	Virginia.									
	Bridgeton.		Hights- town.		Phillips- burg.		Sussex.			Baltimore.		Darlington.		Frederick.		Western- port.					Culpeper.		Fredericks- burg.		Staunton.				
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1....	82	62	79	59	78	58	72	51	79	63	76	58	77	59	75	59	86	82	79	63	82	60	86	61	84	58			
2....	87	55	85	50	83	56	82	49	89	63	85	57	85	56	88	49	89	52	84	59	85	61	83	60	85	51			
3....	77	64	70	63	69	60	69	60	86	69	73	65	82	66	90	63	84	67	86	55	86	64	86	60	86	50			
4....	82	58	80	54	82	54	82	48	86	63	81	64	78	60	81	64	84	57	75	53	81	67	85	65	82	58			
5....	72	60	70	56	65	55	70	63	78	60	73	59	80	64	88	56	76	61	84	62	87	64	82	64	82	38			
6....	63	55	62	54	63	51	61	50	68	57	63	57	61	54	75	56	76	58	66	60	64	57	78	59	79	58	83	64	
7....	73	58	70	57	68	56	63	55	69	57	70	60	78	54	70	59	73	58	67	60	67	60	68	61	69	60	80	60	
8....	80	58	77	55	79	57	77	56	72	60	75	60	75	58	82	61	70	60	70	57	74	61	70	62	72	67	80	62	
9....	87	54	86	50	88	51	83	46	85	53	85	61	84	56	83	51	81	54	85	53	85	58	82	52	85	50	80	52	
10....	91	59	89	58	88	59	-	85	56	97	56	92	66	85	59	94	60	96	56	90	56	92	61	88	58	90	57	93	56
11....	97	68	90	65	94	64	87	64	101	65	99	73	90	68	98	67	99	65	101	66	101	70	93	65	97	67	97	67	
12....	87	66	84	63	85	63	78	64	83	66	87	65	85	65	91	67	89	65	86	66	89	67	90	68	89	70	80	62	
13....	82	66	80	64	81	63	76	59	88	64	79	68	79	63	84	63	81	55	83	62	81	83	64	82	65	80	62		
14....	78	60	78	60	75	59	73	58	76	61	77	64	73	59	78	58	80	64	79	62	75	61	76	58	77	57	87	57	
15....	80	56	79	58	77	56	75	57	78	53	76	55	79	57	77	48	79	56	76	59	80	56	77	56	78	57			
16....	80	55	80	50	76	51	74	48	82	55	81	61	78	52	83	55	78	49	85	54	82	59	80	54	82	55	82	58	
17....	80	50	78	48	77	48	75	45	78	54	72	57	75	51	80	52	73	52	80	51	75	56	76	57	75	59	80	59	
18....	68	59	73	59	78	58	77	52	97	56	72	61	73	58	71	61	74	60	70	60	70	59	62	72	61	81	61		
19....	84	55	85	54	86	55	85	51	82	58	82	61	78	57	83	56	79	57	87	52	81	56	79	58	77	56	76	61	
20....	90	62	89	61	86	61	82	58	89	67	90	64	86	57	89	61	87	54	94	61	89	62	89	62	91	59			
21....	82	55	79	51	77	54	73	54	87	57	83	65	80	56	84	58	85	51	81	55	84	61	87	60	84	66	90	56	
22....	90	66	87	52	89	57	88	49	94	64	92	63	89	55	91	55	93	50	95	54	93	60	94	55	91	56	94	53	
23....	90	70	88	68	87	67	83	63	97	59	90	72	89	66	93	72	94	67	93	73	93	69	91	61	96	65	98	63	
24....	80	63	80	58	79	55	80	55	97	67	81	68	80	62	85	68	90	62	77	67	84	69	83	66	90	68	94	64	
25....	80	62	71	60	69	61	72	60	80	66	80	65	77	61	79	65	75	67	78	65	83	66	82	67	85	67	80	67	
26....	78	65	75	62	72	61	72	61	88	66	84	68	77	61	87	70	86	69	88	66	90	72	89	69	88	66	88	66	
27....	95	68	89	65	89	67	84	66	96	70	93	73	88	69	94	71	90	68	95	70	94	71	91	70	98	70	90	71	
28....	92	69	92	67	91	68	88	67	92	73	88	65	90	68	88	65	93	68	88	68	90	65	89	65	90	66	88	66	
29....	85	68	82	63	81	61	88	58	84	63	82	70	82	64	85	65	84	58	86	56	82	66	83	67	83	70	87	62	
30....	83	58	85	54	85	54	83	53	88	58	85	63	83	57	82	56	88	51	87	58	82	55	85	59	87	58	85	58	
Mns..	82.5	60.8	80.4	57.9	79.9	58.0	77.9	55.6	85.8	59.9	82.3	64.5	79.9	59.4	83.5	61.4	83.4	57.7	83.7	59.9	83.1	62.9	83.7	61.2	83.3	62.3	84.4	59.8	

^a, ^b, ^c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.[§] Data are from standard instruments not supplied by the United States Weather Bureau.^{§§} Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.